student lies in the numerous close parallels to be found between animals and plants in respect of heredity. A discovery in an animal may at any moment throw a flood of light upon puzzling phenomena in plants, and the converse is equally true. The genetics of plants and animals are so closely interwoven that an attempt to treat of one without the other necessarily leads to a sense of incompleteness. At the same time the unity of some of the fundamental phenomena of life in the vegetable and animal kingdoms—a most valuable lesson for the young student—is apt to be lost sight of. Even the authors have had to confess that the animal cannot be entirely excluded, for they had perforce to bring in Morgan's Drosophila and Castle's rats. Nevertheless, they have succeeded in illustrating most of the important phenomena from plants alone, and the work will be of service not only to the young botanist, but perhaps even more so to the zoologist, who is apt to be hazy with regard to the special features that plants exhibit.

We venture to hope that in the next edition the authors will enter rather more fully into the phenomena of the fertilisation of plants; for it is here that the zoologist so often encounters a stumbling-block. The chapter on endosperm inheritance is a distinct advance upon the usual text-book treatment; but we would suggest, for the sake of the zoologist, a more detailed account of the manner in which the egg is derived from the megaspore, and of the fate of the nuclei of the pollen-grain. Apogamy, too, might be treated more liberally, with reference made to the important researches of Ostenfeld and Rosenberg. Apart from its intrinsic value, the work of these observers has a peculiar interest in connection with Mendel's own work on Hieracium. On the whole, the authors have given a clear and lucid presentation of genetic phenomena in plants, and one that should prove useful to the class of student for whom it was designed. We hope it may fall into the hands of many students and teachers in this country, where the study of plant genetics is far less widespread than it should be. It is high time it became an integral part of the botanical course at every university, and the authors of this little book have certainly demonstrated that this can easily be done without unduly trespassing upon the field of the zoologist.

For the benefit of the English student, it should be stated that although the authors have naturally drawn upon American material in illustration of the various phenomena, it does not follow that these were necessarily discovered on the other side of the Atlantic. They state, for instance, that "the classic illustration of coupled characters was brought to light by Emerson during breeding experiments with corn." If there is a classic example here, it should surely be Bateson and Punnett's sweet peas, where the phenomena were first discovered, and the peculiarities of this type of inheritance first worked out. The authors confess to some inexactness in dealing with details, urging the excuse of pedagogical necessity. Still there are few statements definitely misleading. But the account of Mendel's peas on p. 37 looks as though the authors had fallen into the familiar trap that has snared so many an elementary student, forgetting that the seed characters used belong to a generation subsequent to that of the plant on which they are borne.

The book is of a handy, small size for a student's pocket, well printed, and illustrated by a number of simple diagrams.

NATURAL HISTORY IN THE NEW WORLD.

(1) *Far Away and Long Ago. A History of My Early Life.* By W. H. Hudson. Pp. xii+332. (London: J. M. Dent and Sons, Ltd., 1918.) Price 15*s*. net.

(2) *Jungle Peace.* By William Beebe. Pp. 297. (New York: Henry Holt and Co., 1918.)

(3) *The Ledge on Bald Face.* By Major C. G. D. Roberts. Pp. 255. (London: Ward, Lock, and Co., Ltd., 1918.) Price 5*s*. net.

(1) THERE is much of the old-time naturalist in "Far Away and Long Ago," by that G.O.M. of natural history, Mr. W. H. Hudson. It is a simple story, the recollections of his early life on the savannahs of the Argentine. We can imagine the *estancia*, with its poplars and willows, and with its flowery orchard lying isolated on the lonely downs. The whole was protected by a broad moat, and must have been a veritable oasis to woodland birds in what otherwise was to them an inhospitable land. Here Hudson made friends of birds, beasts, and trees, each one to him acquiring its own individuality: the cowbird parasitical like the cuckoo; the red willow, with its pair of tyrant birds, ever ready to attack the wandering hawk; green paroquets; peaches in blossom, loveliest of sights, and a proper bandstand for flocks of singers. The armadillo and the opossum were burrowers, the latter, with its children, giving hospitality to pit vipers, most malignant of snakes. Here and there, on the plains, were *viscacha* villages, immense badger-like earths of a large rodent now getting extinct. The house was an old one, a relic of the early Spanish settlers, tillers of the ground, later driven to the herdsman or *guacho* life. As to the fenman the fens are the most beautiful of all lands, so to Hudson his pampas colours of yellow to rust, the latter produced by giant thistles, are beyond compare, their serenity disturbed only by the occasional *pampero* (hurricane) from the Southern Ocean. He was clearly a lonely boy, and it is not difficult to see how he made friends with Nature.

Hudson brings us back to Rosas, whom he describes as the bloodiest, the most original-minded, and the greatest of the dictators of South America. Rosas was in origin a *guacho,* and he had the cruelty and sardonic humour of the class from which he sprang. He brought peace to the prairies, and in his time came many of

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the British settlers, who are now merging into a new race. The old settler neighbours are described with their establishments and estates, which are clearly best remembered for their rheas, feral pigs, or more frequently their birds and frog-infested lakes. Old as Hudson is, he still remains a boy, projecting himself into bird, beast, and plant. We imagine him as full of happiness and peace, and we trust he may continue so for many years. Try as we may, we cannot speak of him impersonally after we have read his book.

(2) "Jungle Peace" is altogether a contrast, the work of a modern, professional naturalist, with excellent descriptions and bright writing, but without the delightful unconsciousness of self belonging to the old-time author. Perhaps, in these days, scientific education has to some degree killed out the soul for Nature, and we may never see it again in its old form in the professional man of science, in whom the wonders of heredity have crushed out interest in simple habits and psychology. The book is the description of the establishment of a tropical research station in British Guiana, the wish being to study birds, beasts, and insects in their natural environment. The site chosen was an old house in the jungle near the mouth of the Essequibo, and the quite vivid descriptions show that it was well chosen and suitable for researches on the beasts of the little-known continent of South America. The jungle came right up to the doors of the house, and a trail was cut through it to form a collecting ground. The fauna was evidently of extraordinary richness.

(3) Our third work is in a different category still, the latest work of a popular author of the North-west, a land famed for its inimitable wilds and its few, but conspicuous, beasts. To quote R. W. Service,

Big mountains heaved to heaven, which the blinding
  sunsets blazon,
Black canyons where the rapids rip and roar.

Major Roberts is a man to follow, for he is never dull, and is true to Nature in man, bird, and beast.

OUR BOOKSHELF.

Man's Redemption of Man. By Sir William Osler. Third edition. Pp. 63. (London: Constable and Co., Ltd., 1918.) Price 7*d.* net.

THIS "lay sermon" is a delightful piece of writing; good thoughts in good English; a little Magnificat for anæsthetics, antiseptics, preventive medicine, and other great results of the work of the medical sciences; the author has the secret of sympathy, and the art of making you think of what he is saying. The war has shown us further instances of the value of medical discoveries than we had in 1910; but that fact does not impair the wisdom and the pleasantness of the discourse. There is one passage in it which is exemplary; Sir William challenges the anti-vaccinationists with the old argument, which they cannot beat:—

"I would like to issue a Mount-Carmel-like challenge to any ten unvaccinated priests of Baal. I will take ten selected vaccinated persons, and help in the next severe epidemic, with ten selected unvaccinated persons (if available!). I should choose three Members of Parliament, three anti-vaccination doctors, if they could be found, and four anti-vaccination propagandists. And I will make this promise—neither to jeer nor to gibe when they catch the disease, but to look after them as brothers; and for the three or four who are certain to die I will try to arrange the funerals with all the pomp and ceremony of an anti-vaccination demonstration."

Galileo. By W. W. Bryant. ("Pioneers of Progress," Men of Science Series.) Pp. 64+portrait. (London: Society for Promoting Christian Knowledge, 1918.) Price 2*s.* net.

BORN in the same year as Shakespeare, Galileo Galilei shared with his contemporary that philosophic outlook, that felicity of diction, and that elegant style which have contributed to the fame of both. Prof. Playfair has said that in reading Galileo's "Dialogues" one feels oneself carried back to the period when the telescope was first directed to the heavens, and when the earth's motion, with its train of consequences, was proved for the first time. Mr. Bryant has given a careful account of the life of the great natural philosopher, whose first appointment was a professorship of mathematics with a salary of about five shillings a week. Galileo was, however, both a discoverer and an inventor, and started a workshop in his own house, in which he employed a staff of mechanics under his personal supervision to make his geometrical and military compass, his hydrostatic balance, his magnets and telescopes. He ground all his lenses himself until his sight failed. The story of his conflict with the Jesuits as to the Copernican doctrine, and of his examination before the Inquisition, is retold in an interesting but unbiassed manner. His sufferings hastened the triumph of the doctrines which he upheld, and have ensured his enduring fame. H. S. A.

Surface Tension and Surface Energy and their Influence on Chemical Phenomena. By Dr. R. S. Willows and E. Hatschek. Second edition. Pp. viii+115. (London: J. and A. Churchill, 1919.) Price 4*s.* 6*d.* net.

THE first edition of this useful volume was reviewed in the issue of NATURE for July 8, 1915 (vol. xcv., p. 506), when the scope of the book was described. The present edition has been enlarged by the addition of a chapter on some important complex phenomena, and it also now includes, among other additions, Mr. Whittaker's work on the connection between surface energy and internal latent heat; a summary of recent theories on the structure and properties of metals, in which the surface energy of the intercrystalline layer plays an important part; Dr. A. Ferguson's equation connecting surface tension and absolute temperature, and paragraphs on adsorption.

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